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## “NINETY MILES IN EIGHTY-NINE MINUTES.”

BY THEODORE VOORHEES, GENERAL SUPERINTENDENT OF THE  
NEW YORK CENTRAL AND HUDSON RIVER RAILROAD.

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“ANOTHER record broken. A remarkably quick trip from Jersey City to Washington.” These are the headlines that appear in the morning papers, and call attention to the latest fast, long-distance special train. The account goes on to say that the distance, 227 miles, was covered in exactly four hours’ running time, and that “the party aboard was delighted at breaking the record.”

Of those who read this account, how few gave a thought to the real merits of the feat and the fine organization necessary to make it possible! Even of those who were passengers on the train in question, how few, aside from the professional railway men who may have been of the party, appreciated the details of the effort that was being made for their benefit! To make such a trip possible required, first, a road-bed, solid, substantial in every respect, free from bad curves, guarded from all liability of obstruction, and protected by reliable signals. Next, that the rolling stock and motive power be in perfect order and of ample capacity to do the work assigned. And, finally, after the most careful preparation, all would have gone for naught had not the actual handling of the train been put in charge of engineers whose experience, skill, nerve, and courage fitted them for the work. Such men are rare and by their employers valued, but by the public seldom appreciated.

The technical knowledge required to handle a locomotive engine is not a difficult matter to acquire. Ordinarily a boy, after spending a preliminary year or so in the round-house or shops, is put on an engine as a fireman. His period of service in that capacity varies greatly according to the natural ability he may display and the

exigencies of the service. From a fireman he is promoted to the first or lowest grade of engineer, *i.e.*, on a yard or shifting engine. From that he is promoted, in due time, to the next grade, that of freight engineer, and finally he is put in charge of a passenger locomotive.

A man, to fill this position, should have had sufficient experience to know exactly what to do in any case of emergency; should be prompt and quick in decision, clear-eyed, alert, watchful for any indication of danger, free from fear or nervousness, forgetful of self if danger does confront him. To the credit of American locomotive engineers, it must be said, our records show that we have many such men in active service to-day.

Yet a man may be all this and thoroughly competent to handle a regular passenger train, who would still be unfit for such record-breaking service as has been of late the subject of newspaper comment. "Ninety miles in eighty-nine minutes!" "One hundred and forty-two miles in one hundred and forty minutes without a stop!" One can hardly appreciate what this means until one sits by the engineer's side and sees it done.

The skill and judgment come from long experience; the coolness, the watchful eye, and the nerve are born in the man and cannot be acquired. Great generals are born, not made. So it is with fine engineers. No amount of experience will produce them unless they possess the special qualities needed.

Sometimes it happens that a single accident will destroy the future of a capable man. Some years ago there was a young engineer employed on a railway in the State of New York who was in every way fitted for his position. Intelligent, quick-witted, with a thorough knowledge of the locomotive, he was prudent, watchful, prompt in emergencies, and capable of performing any duty required. One dark night, while running a regular passenger train and passing over a specially crooked portion of the line, there suddenly appeared before him the headlight of an approaching locomotive on the same track. No time to do more than shut off steam and apply the brakes, and the collision occurred. Both engines were overturned and badly wrecked. The fireman had had a moment's warning from the engineer and jumped. The engineer stood by his work, and went down in the wreck. When picked up, his shoulder was dislocated, but no bones were broken, and he was soon able to be sent to his home. His principal trouble

appeared to be from the shock. After a few weeks he gradually recovered. He got out, and after a further time reported for duty. He was put back on his former train. He appeared to be quite well and as fit for duty as ever. The train started and all went well during daylight. The return trip was made at night. As the train approached the crooked piece of road, the fireman noticed that the engineer seemed to grow white and nervous, and involuntarily to shut off steam. The train drew nearer and nearer the scene of the accident, and the engineer grew more and more nervous. Finally when the exact spot was reached, he fell over. He had fainted. His career was at an end. He never stood on the footboard again.

To drive a locomotive at a very high speed continuously for a considerable distance undoubtedly involves the exercise of great skill and judgment on the part of the engineer. That it necessarily involves a great strain on his nerves or endurance does not follow. On the contrary, very many cases occur in the daily working of our railways where men are put in positions trying by reason of the risk to be encountered rather than by any speed required.

The calling of a locomotive engineer is one involving a certain hazard. The degree of danger involved depends very greatly on the nature of the service.

Regular trains, that are duly advertised and shown on the schedules of the road, that are run regularly day after day by the same men, are by far the safest service. The men running them become used to them and perform their daily work with the regularity of machines. They think as little of danger as the passengers in the trains behind them. Many a man to-day is running the same train he ran ten, fifteen, even twenty years ago, and will continue to run it for years to come. With such service the question of speed counts but for little. Provided the work be regular, uniform, day by day the same routine, it soon becomes a matter of custom or habit, and with good health it cannot be said to involve any special strain on the system.

Not long since the engineer of a limited train "pulled out" from a station where the train had made a regular stop. Within the next two miles he brought the train to the precise rate of speed called for by the schedule, about forty-two miles per hour. After that, save for an occasional glance at his gauges, he appar-

ently did nothing for nearly two hours. He did not move the throttle-valve nor touch a lever. Except for his watchful look ahead one would not have thought him on duty. Approaching the end of his run, he got off his seat, took off his overalls, and had the fireman give him a basin of water, with which he washed his hands. A few minutes later he gradually shut off steam, and then with the air-brake brought the heavy train to a stop at the end of an eighty-one miles run, exactly on schedule time. Such coolness and accuracy can only be acquired as a result of daily habit and long experience.

The recent exceptionally fast service between New York and Buffalo, involving, as it does, a speed of a mile a minute for the greater part of the distance, has proved no more trying to the engineers who run the train than to those of other regular trains of the same line. The speed is a question of power and weight—the power of the locomotive to do its work easily and the weight of the train. The chief anxiety of the engineer is as to whether his engine is in first-class condition, capable of doing the work called for without crowding. He knows that every man on the line is alert and looking for his train, that every possible precaution is taken to insure him a clear track, that the chance of any obstruction is reduced to a minimum. He drives his engine, conscious that he has the best “run” on the road, that he has a position eagerly sought after, with no thought of possible danger, but with a feeling of pride that his engine is capable of such work and that he is identified with a road where such work is possible.

Irregular or special train service is accompanied with more risk of accident than regular service. It constantly happens that the requirements of the business necessitate special service, often on very short notice. Such work always involves a certain risk, and is proportionately trying to the engineers. Especially is such service dangerous when performed at night or in a storm or dense fog. To drive an engine “running extra” on a dark night or through a driving snow-storm or heavy fog is as unpleasant a duty as can be assigned to an engineer; the chief danger being, not the risk of collision, which even in fog is but slight, but the danger of striking some trespasser walking on the track—a danger which unfortunately is ever present to our engineers.

The annual reports of the various State Boards of Railway Commissioners give the number of persons who each year lose

their lives while trespassing on railway tracks. Of the far greater number of persons who daily walk on the tracks and narrowly escape death we hear nothing. And yet the narrow escape is almost as trying to the engineer as the real accident.

The engineer will often on rounding a sharp curve meet a long freight train on the opposite track. Directly ahead and but a few feet distant stands a woman on the track waiting for the freight train to pass. The noise of the passing cars prevents her hearing the approaching train. The engineer reverses his engine, applies his air-brake, and pulls his whistle-lever, knowing all the time that he cannot possibly stop in the short distance. The most hardened veteran at such a moment will feel sick and faint. It may happen that at the last moment the woman sees the engine and leaps backward. She is safe, but will not recover from the fright for hours, while the engineer sweeps on and does not recover his composure for some time to come.

It is not alone the trespasser on the track ahead that requires the close attention of the engineer. There is a constant succession of signals, switch targets, train or station indicators, etc., all of which require his watchfulness.

It would be difficult to convey an adequate idea of the number and variety of details that go to make up a single run of an engineer, or the full degree of responsibility that rests upon his shoulders. The greater number of our roads, even those with the heaviest traffic, have but a single station at each point. All passengers habitually walk across a track to take a train going in one direction. Overhead bridges or under passage-ways are almost unknown. Even where they are provided the public rebel and evade their use by every means in their power. The result is that one ever-present danger which our engineers have to guard against is that of running over passengers who may be entering or leaving a train on the opposite track. This, while it may seem a matter of course, often involves the exercise of great judgment on their part.

Highway crossings at grade are a constant source of danger. Accidents often occur that are absolutely beyond the power of the engineer to prevent, and yet in very many cases the men are held accountable and the company held liable.

Horses and cattle break through fences and appear suddenly in front of a train. Such a case occurred but a few days ago,

where a pair of horses came off a farm-crossing directly in front of a train. The result was that the engine was thrown in the ditch bottom side up, the fireman killed outright, and the engineer and one other employee seriously injured.

That all signals must be promptly obeyed is a matter of course. This becomes a sort of second nature to an experienced engineer. He will shut off steam and apply the air-brake at the sight of a danger-signal long before a novice who may be riding on the locomotive with him will have caught sight of the signal. To aid the engineers in this respect, where signals are liable to be obscured by smoke or escaping steam, auxiliary audible signals are sometimes used—torpedoes on the rail or gongs.

Accidents from a direct failure to properly observe and obey fixed visual signals are very rare. Yet when they do occur the consequences are so serious that the attention of inventors has been especially turned to the subject. Several very ingenious devices have been suggested to supplement the action of the engineer when passing a danger-signal, and, in fact, to do his work for him in case of negligence. One of the most ingenious proposes to use the compressed air of the air-brake, and by that power, called into action by a guard-rail on the track and certain electrical connections, automatically to shut off the steam on the engine and apply the brakes on the train, in case of any neglect on the part of the engineer.

The locomotive engineers of this country, from the necessities of the case, are a picked body of men. They are prudent, trustworthy, sober, and intelligent in a very high degree. In nothing is this better shown than in the success that has been attained by them in the organization known as the Brotherhood of Locomotive Engineers, which comprises the great majority of the engineers in the United States. This is a form of trades-union which, under the wise and skilful guidance of its grand chief engineer, has for many years upheld and advanced the best interests of its members throughout the country. That the Brotherhood has made some mistakes its best friends will not deny. But it has proved of incalculable benefit to the widows and orphans of hundreds of its members. And in one especial feature its policy should be commended. Differing from many so-called labor organizations, which seek to level all their members to the grade of the least efficient, the Brotherhood has always recognized the necessity

and value of classification ; urging that different men be paid according to their experience and the duties required of them, and so using its influence to elevate and promote its members, by degrees, to the highest grade of proficiency, instead of holding all down to the level of the least efficient.

What becomes of old engineers ? There is a certain fascination in the occupation that unfits many men for any other work. They have no ambition, but are content to live and die engineers. On the other hand, many are promoted to the higher positions in the mechanical department of the railways. They become round-house foremen, engine-despatchers, master mechanics, etc. Exceptional men make exceptional advancement in this as in other callings. Some of the most able men in the railway service of the country to-day began life in the shops and worked their way up from the foot-board of the locomotive.

Many very useful and valuable devices have been the invention of locomotive engineers. In fact, the efficiency of the American locomotive may be said to be in a large measure the result of such inventions. It is by reason of their skill and ingenuity that the American locomotive is so efficient and is able to perform an amount of work that is the wonder and admiration of our friends abroad.

With these locomotives American railway managers move on our railways—the greater number of which have but a single track, and many of which can hardly be said to be more than half finished—a traffic which in volume, rapidity of transportation, and economy is a constant marvel.

But no efficiency of our locomotives would accomplish this result were it not for the fidelity, skill, ingenuity, and trustworthiness of the men in charge of them—our locomotive engineers.

THEODORE VOORHEES.